

# MI PRAMS Delivery



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## The Experience of Stressful Life Events In Pregnant Women

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### Points of Interest:

- ❖ Most women experienced at least one stressful life event during their pregnancy.
- ❖ The majority of women experience 1-2 events.
- ❖ The most prevalent stressful life events were those concerning finances, spouse/partner problems and housing.
- ❖ Stress is thought to affect pregnancy outcome directly (via hormones) and indirectly (via adverse maternal behavior).
- ❖ Smoking in the third trimester was more than twice as likely in women who experienced more than 3 stressful life events or events related to housing, legal issues, finances, or spouse/partner.

Numerous articles have documented the effect of stressful life events on birth outcomes<sup>1</sup>. Stressful life events are defined as exposure to out of the ordinary, demanding

events, such as job loss, that have the capacity to change patterns of life or lead to unpleasant feelings<sup>2</sup>. This issue of *MI PRAMS Delivery* will look at the prevalence of stressful

life events, both number and type, experienced by women in Michigan who delivered live infants in the second half of 2001.

### Stressful Life Events among MI Pregnant Women

In the core section of the PRAMS phase 4 questionnaire, there was one question which asked the mother to choose from the list of stressful life events, all those she experienced in the year prior to the birth of her newest infant. The options of stressful life events the mother had to choose from were:

1. *A close family member was very sick and had to be hospitalized*
2. *You got separated or divorced from your husband or partner*
3. *You moved to a new address*
4. *You were homeless*
5. *Your husband or partner lost his job*
6. *You lost your job even though you wanted to go on working*
7. *You argued with your husband or partner more than usual*
8. *Your husband or partner said he didn't*

*want you to be pregnant*

9. *You had a lot of bills you could not pay*
10. *You were in a physical fight*
11. *You, your husband or your partner went to jail*
12. *Someone very close to you had a bad problem with drinking or drugs*
13. *Someone very close to you died*

1. By number ( "no events," "1-2 events," "3-5 events," and "6-13 events")
2. By type ("illness/death events," "spouse/partner problem events," "housing events," "financial problem events," and "legal problem events")

Stressful life events can be examined in two ways:

A majority of women who delivered a live infant in the second half of 2001 had

### What's New in Phase 4:

To date, the PRAMS questionnaire has undergone 4 phases of revisions. Starting in the second half of 2001, several changes were made in the conduct of the PRAMS questionnaire, as well as changes in the questionnaire itself.

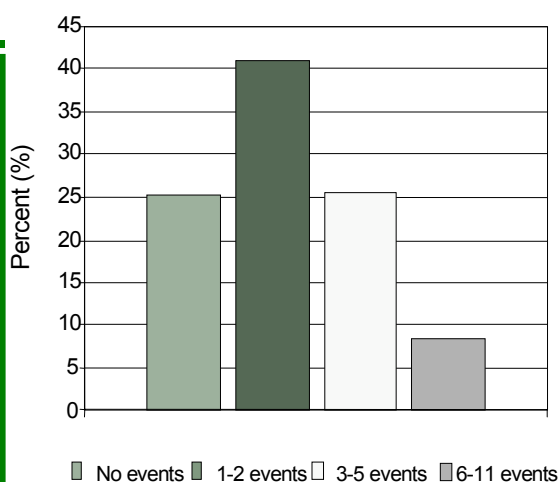
- ◇ In July, the sample population was stratified by population density and birthweight.
- ◇ The hospital interview component was removed.
- ◇ New state-added questions were included. Topics to be addressed by these new questions include: racism, mental health, mental/emotional abuse, and pre-pregnancy contraception.

## Racism as a Form of Stress

The gap between Blacks and Whites in maternal and infant morbidity and mortality is well documented. This disparity in adverse outcomes persists even after adjusting for age, education, SES, and insurance status. Genetic differences between the races alone have not been able to explain the disparity. Several studies that compared the birth outcomes of US-born Black women and recently immigrated Black women, found that US-born women still had poorer birth outcomes<sup>3</sup>. In an attempt to explain the disparity, researchers have looked to other factors that may be associated with poor pregnancy outcomes. Stress has been linked to poor pregnancy outcomes<sup>1,4,5</sup>. Many researchers have hypothesized that the experience of racism may increase stress and thus place the mother at an increased risk for adverse pregnancy outcomes<sup>1,6</sup>.

In order to explore the relationship between racism as a stressor and pregnancy outcome, Phase 4 of Michigan's PRAMS questionnaire includes four new questions about the mother's experience of racism in the year prior to the birth of her infant. These questions were derived from the *Reactions to Race* module developed by the Division of Adult and Community Health, National Center for Chronic Disease Prevention and Health Promotion. Analysis of the data obtained from these questions will be the subject of a future edition of MI PRAMS Delivery.

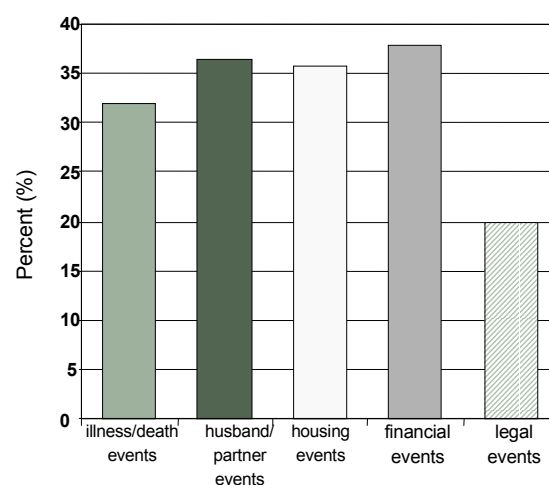
Fig.#1: Number of stressful life events, 2001 (Jul-Dec) PRAMS



experienced at least one stressful life event in the year prior to the birth of their new infant (Fig. #1). Most women (40.97%) experienced "1-2 events." A quarter of the women experienced no stressful life events (Fig. #1). The most commonly reported events were those related to finances, housing, and spouse/partner problems (Fig. #2). The proportion of women who report experiencing "no events" or "1-2 events" increased with age, education, and socioeconomic status (low SES was defined as living in overcrowded housing, receiving public assistance, or being enrolled in either WIC or Medicaid in the prior year). Prevalences of "no events" was nearly 16% and "1-2 events" reached 29% among women under the age of 20, whereas, in

women aged 35 years or more, they were 28% and 52%, respectively. Women with less than a high school diploma reported prevalences of "no events" or "1-2 events" of 14.28% and 38.71%, whereas, women with post-secondary education reported prevalences of 29.59% and 45.71%. Women not of low socioeconomic status reported prevalences of 35.53% for "no events" and 51.07% for "1-2 events," whereas, women of low socioeconomic status reported prevalences of 16.09% and 32.10%, respectively. Non-Hispanic Black women experienced a higher proportion of "3-5 events" compared to non-Hispanic White women. These women also experienced a higher proportion of stressful life

Fig.#2: Grouped stressful life events, (Jul-Dec) PRAMS



events related to finances and spouse/partner problems (50.93% and 43.16%). Marital status was also found to be correlated with the number and type of stressful life events experienced by women. A higher proportion of women who were married reported experiencing either "no events" or "1-2 events" compared to women who were not (31.27% and 44.36% vs. 11.62% and 32.99%). Also, compared to married women, women who were not married experienced a higher proportion of all types of stressful life events, particularly those events related to finances (56.06%) and spouse/partner problems (52.10%).

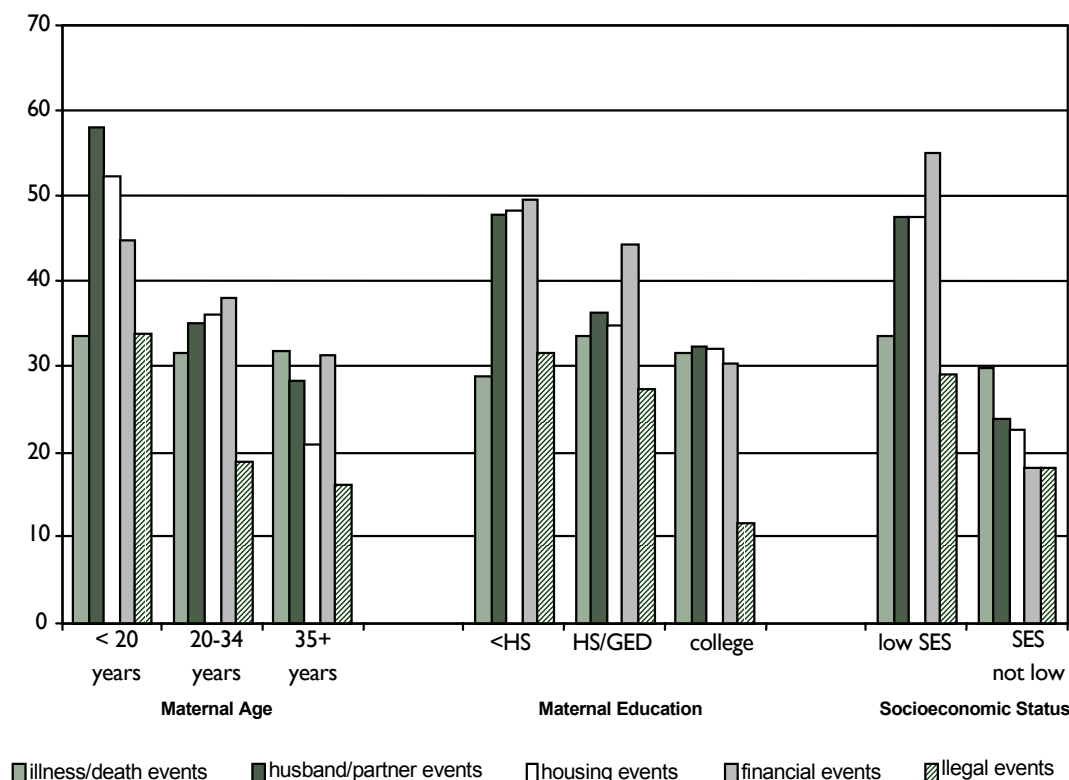
## How Stressful Life Events Affects Pregnancy Outcomes: An Analysis of MI PRAMS data

The association of stressful life events with adverse maternal behaviors (smoking or drinking in the third trimester, or initiating prenatal care after the first trimester) and adverse pregnancy outcomes (low birth weight and pre-term birth) was

measured using both crude and adjusted odds ratios. When adjusting for maternal demographics, such as maternal age, education, marital and socioeconomic status, the only statistically significant association was found between stressful life

events (both number and type) and smoking during the third trimester of pregnancy. No statistically significant association was found between stressful life events and low birthweight and pre-term birth when adjusting for maternal demographics and behavior.

Fig.#3: Grouped stressful life events by maternal age, education and socioeconomic status, 2001 (Jul-Dec) PRAMS



## How Stress Affects Pregnancy Outcomes: A Literature Review

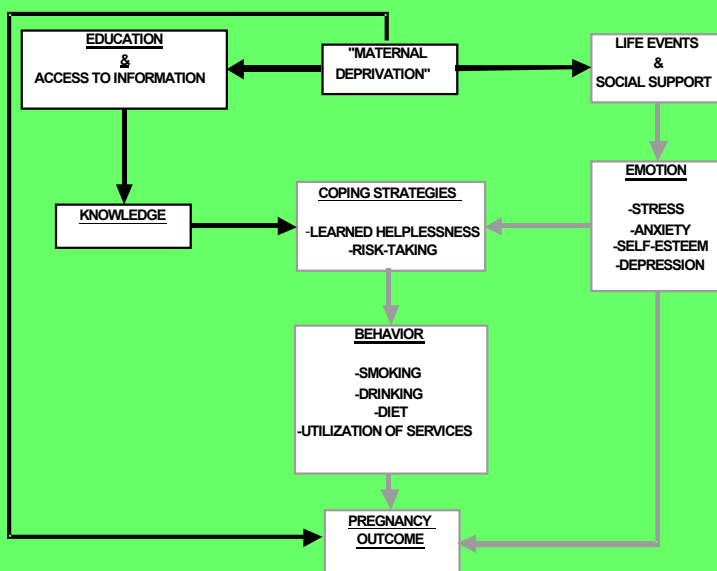
The literature describes two pathways in which psychosocial stress affects pregnancy outcomes; a direct path effecting hormones and the immune system, and an indirect path involving a woman's reaction to stress. Exposure to stress evokes both endocrinologic and immunologic responses in the body. Hormones secreted during times of stress have been found to be associated with adverse pregnancy outcomes (i.e. early labor)<sup>7</sup>. Also, prolonged stress can be immunosuppressive, increasing a woman's susceptibility to infections<sup>8</sup>.

Women experiencing stress and

with poor coping skills are more likely to turn to adverse health behaviors (i.e. smoking) during times of stress<sup>9</sup>. These adverse maternal behaviors in turn

affect pregnancy outcome. (Fig. #4) developed by Rutter and Quine describes a possible mechanism by which stress effects pregnancy outcomes<sup>10</sup>.

Fig. #4: Effect of maternal deprivation on pregnancy outcomes.



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## About Michigan's PRAMS

The Pregnancy Risk Assessment Monitoring System (PRAMS), a population-based survey, is a CDC initiative to reduce infant mortality and low birth weight. It is a combination mail/telephone survey designed to monitor selected self-reported maternal behaviors and experiences

that occur before and during pregnancy, and early-post partum periods of women who delivered a live infant in Michigan. Information regarding the health of the infant is also collected for analysis. Annually, over 2,000 mothers are selected at random to participate from a frame of eligible birth

certificates. Women who delivered a low-birth weight infant were over-sampled in order to ensure adequate representation. The results are weighted to represent the entire cohort of women who delivered during that time frame.

## Coping With Stress

Pregnancy can be a stressful time in a woman's life. The key to dealing with stress in an effective and healthy manner is to utilize positive coping strategies. Examples of positive coping mechanisms include: talking

over problems, regular physical activity, and eating well-balanced meals. When stress becomes overwhelming the advice of a mental health professional is necessary. A list of mental health

services and organizations in Michigan can be found at:

[http://www.mentalhealth  
.org/databases/MHDR.asp  
?D1=MI&Type=MDR](http://www.mentalhealth.org/databases/MHDR.asp?D1=MI&Type=MDR)

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